ALPEN-ADRIA UNIVERSITÄT KLAGENFURT

Invitation to the Doctoral Seminar

Tobias Wolf, M.Sc.
Universität Klagenfurt

"Multiscale hierarchical decomposition methods for ill-posed problems"

N.2.35 | Wednesday, 31 May 2023 | 10:45 a.m.

Abstract

The Multiscale Hierarchical Decomposition Method (MHDM) is a popular method originating from mathematical imaging. In its original context, it is very well suited to recover approximations with fine details of blurred and noise-corrupted images. The main idea is to iteratively decompose an image into a cartoon and a texture part at different scales. We consider the algorithm in a more general framework, allowing one to apply it for a wider variety of problems. We expand existing convergence results, and propose a necessary and sufficient condition under which the iterates of the MHDM agree with the well-known Tikhonov regularization. We conclude by discussing our results on several examples. This is joint work with Stefan Kindermann and Elena Resmerita.

Elena Resmerita and the Department of Mathematics look forward to seeing you at the talk!